SOME ACCOUNT
OF
THE MINING DISTRICTS
OF
LOWER PÊRAK.

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THE region of Lower Pêrak comprises numerous mining districts, which can be placed under the three following headings :—

Sungei Kinta District.
Sungei Bâtang Pâdang District.
Sungei Bîdor District.

The former is by far the most extensive, and includes no less than six mining centres which, according to Malay custom, take their names from the various main streams which drain them. They are the districts of Ulu Kinta, Sungei Trap, Sungei Raya, Sungei Tejah, Sungei Kampar, and Sungei Chendarîang.

Geological description.

Before giving the particular mining features of these various tin-fields, it is well to indicate first the geological outline of the country.

The geological conditions of this part of the State are more varied than in the northern districts, and offer a greater diversity of sedimentary formation. (*See* Section.)

Granitic formation.

The granite constitutes the foundation of the main ranges and of the hills round which are distributed the different tin-fields.

It is met with in the Senggan range at Gûnong Klêdong, Changkat Lahat, the Gôpeng hills, Bûjang Malacca, and forms the basis of the Changkat Chumor and Janka, near Tapa.

Like in other parts of the country, the rock is highly porphyroid, composed of vitreous quartz, feldspar, mica and tourmaline, in which are imbedded large crystals of feldspar.

The decomposition of the granite by atmospheric agencies has gradually denuded the large crystals, which are harder than the feldspathic element in the paste, and left them projecting from the surface, giving the rock a peculiar appearance.

The amount of mica and tourmaline varies slightly in the different localities, but without altering perceptibly the general aspect.

Sedimentary formation.

The sedimentary formation is represented by limestone, white ferruginous clay, and talc-schist.

Limestone.

The limestone is very abundant in the whole of the Kinta region, and probably forms the basis of the alluvial deposit. It is found at the foot of Changkat Lahat, between the latter and Sungei Kinta. It has been greatly altered at the contact with the neighbouring eruptive rock, and has taken a saccharoid aspect, being white and very crystalline.

It is found again between Pĕngkalen Pegu and Pĕngkalen Baru, where little peaks crop out of the alluvial soil, broken up and highly decomposed at the surface, but offering no longer the deep alterations noticed near the Senggan range.

At Klian Gûnong (Kampar) the limestone is again visible, being white crystalline and containing, in numerous fissures, the tin-ore that has drifted from the granitic formation in the vicinity.

South of Gôpeng, between Kampar river and Bûjang Malacca, several high hills—Gûnong Ramian, Gajah and Kandong—are entirely of limestone, and resemble, on a larger scale, the well known Gûnong Pondok near Gapis and Gûnong Kurau.

In other spots, such as Kampong Baru on Sungei Kampar, the limestone does not seem to have been much altered by the contact of the Bûjang Malacca group, and has kept the usual aspect of mountainous limestone.

Clay.

In the Bâtang Pâdang district, South of Tapa, the sedimentary formation is represented by white clay imbedding nodules of red ferruginous matter.

Talc-Schist

In a few places of the same district talc-schist can be seen cropping out from under the clay and resting on decomposed granite.

In this particular mining district the tin-ore is found at the very top of the hills, which leads one to infer that the upheaval which has produced them must belong to a second series of plutonic action posterior to that which has formed the principal ranges of the country.

MINING DISTRICTS.

Ulu Kinta

Ulu Kinta district, which includes most of the region above Pĕngkalen Pegu (*see* Map), is the most extensive of all, but at the same time, owing to the greater distance from the sea, is the least worked by miners, who naturally prefer turning first to account the mineral wealth of the lower country.

It is a " reserve " for the future, and will, no doubt, be found just as rich as any other part of the State.

At present the principal works are carried on on the Sungei Pari and Sungei Chĕmer, at the foot of the Senggan range. The tin-ore produced is of a very good quality, and contains a large proportion of white oxide.

The Sungei Kinta itself contains considerable quantities of tin, and near Ipoh the natives find it profitable to wash the sand in the bed of the river. According to reports, a man, if he can stand to work in the water for several hours, can collect in a day as much as fifteen katties of ore, worth two dollars.

ungei Trap istrict.

This district is situated on the right bank of the river Kinta and is well populated by miners, both Chinamen and Malays.

ungei Pa-an.

The Papan valley lies between several high hills and is divided into numerous small "gullies," where rich pockets of tin are found.

The valley is about one mile in width by one and-a-half in length, but, up to now, the outskirts only have been turned to account, owing to the great flow of water which often floods the lower part of the valley.

Thirteen mines are at present in full swing, and occupy five hundred men, Chinese and Malays.

Klian Johan, worked by Chinamen, is the most important of all and is probably the deepest mine in the whole State, attaining a depth of fifty feet.

The ore is disseminated, from the surface downwards, throughout the ground, which is geologically formed of white friable clay. The wash is clean and becomes richer in depth. The pumping of the water is managed by the means of a Chinese water-wheel, and the washing of the ore takes place in a long canal acting as a sluice-box.

On each side of that mine, Malays are also carrying on works to the same depth, but unable themselves to put up a proper draining apparatus, they have made with their more industrious neighbours a contract by which they are allowed to let their water flow into the Chinese mine on condition of paying one-tenth of their whole produce.

The ore is smelted in the village, and, being of a very good quality, no blast is required, and the consumption of fuel amounts to only one pikul of charcoal to one pikul of ore.

Eleven furnaces are at work and return, on an average, forty pikuls in twenty-four hours.

The richest deposit lies, no doubt, in the centre of the valley, but can hardly be worked until a proper and systematic drainage has been organised.

A road, four miles long, is being made and will join Papan to Batu Gajah on the Kinta river.

Sungei Trap.

Several other mines of less importance are worked in the district, especially on the Sungei Trap, where the ore is found in large stones of nearly pure oxide imbedded in a hard blue clay.

Sungei Raya district.

The Sungei Raya district is the smallest of all, but at the same time makes the largest returns of tin, owing to the adventurous and enterprising spirit of Pĕngulu To' DOMBA, who attracts numerous Chinamen by advancing them the necessary sums to start mines in his district. The total Chinese population amounts to 6 or 700, but many other smaller works are carried on by Malays.

Sungei Tejah district. Gopeng.

The principal works are situated in the Gôpeng valley. The geological formation is granitic. At the head of the valley the wash lies under a greyish, yellowish clay at a depth of 8 to 9 feet from surface ; it varies in thickness from 3 to 4½ feet, but does not present throughout a regular percentage of tin-ore, it being generally found in large pockets disseminated in the wash. These pockets are very rich and exceed in quantity and quality anything existing in the best mines of Larut. Unfortunately the extent of mining ground is very limited in the upper part of the valley, and has been very nearly worked out. Four Kongsis, numbering 150 men, are still at work, but will have exhausted their mines within the next two years.

The new mines lately opened in the lower part of the valley towards the plain are getting on fairly ; the wash is thicker, but not so rich and deeper below surface. However, little has been done yet to give the plain a fair trial, and there is no reason why it should not improve.

Fifteen to sixteen Kongsis, with a total number of 7 to 800 coolies, are occupied at present in the Gôpeng district, and returning steadily large quantities of tin. The produce for the week (30th January to 6th February) amounted to 120 pikuls.

The metal is sent on elephants to Pĕngkalen Baru on Sungei Raya, where it is shipped for Durian Sa'bâtang, but a better mode of transport will shortly be available when the Government has completed the fine cart-road which is now being made from Gôpeng to Kota Baru on the Kinta river.

Several other surface works have been started among the small hills lying between Gôpeng and Pĕngkalen Baru; they are of but small importance, but they return very pure ore, which smelts easily and gives as much as 70 katties of metal to one pikul of ore, the percentage being consequently 70 per cent.

It will be noticed that, as a rule, the surface mines known by the name of "Lampong Works" produce much cleaner ore than deep works, owing probably to the fact that the surface soil is lighter than the deeper wash, formed of feldspar and quartz, and is consequently easier to separate by washing: another reason is also that in the "Lampong Works" the miners do not generally smelt their own ore, but sell it, and have often to carry it to a considerable distance, whence the utility of taking greater pains in the dressing.

Sungei Kampar district.

This district is one of the largest, but has been little visited up to now. Chinamen, however, have just begun starting works on their own account, principally at Klian Gûnong, where the tin is found deposited in the fissures and crevices of the limestone.

A certain amount of tin is also found in the bed of the main stream and the natives in several places work it profitably.

Klian Snudong.

At Kampong Snudong, on the western slope of Bûjang Malacca, a Malay mine is being worked on an entirely native principle.

The ore is disseminated throughout the ground, which is slightly argillaceous, but friable and easy to wash.

Small canals have been brought from the river and run at the foot of the different cuttings. The ground is cut down and thrown in those canals and dressed like in a sluice-box, the height of the face is from 10 to 15 feet; when the ground has been stripped to the level of the water, it is divided into small rectangular lots, 30 feet long by 15 wide, round which the canals are made to circulate, these lots are ultimately worked out, but not to a greater depth than 5 feet below the water mark.

These mines are worked by the owners, or by strangers who obtain from them a permit to dig, provided they remit one-third, one-sixth, or one-half of the product, according to the richness of the soil.

Quite lately a Chinaman has come from Gôpeng and started a new mine, where thirty men are employed.

There is no doubt that the whole region lying West of Bûjang Malacca will prove to be one of the richest fields in the whole State.

Chendarian district.

This district is small, but produces first quality ore.

The most important works are in the vicinity of Kampong Naga Baru.

The formation is entirely granitic, and large quantities of ore are found on the surface of the soil, requiring but the trouble to pick it.

The sand of the river is also very rich, and many inhabitants of the village are employed in washing it, getting an average of 70 cents a day.

Some few Malays are also employed in collecting tin-ore in the different small "gullies" formed by the last ramifications of the range.

The only large mine at work in the district belongs to a Malay, who has let it to a Kongsi of fifty Chinamen for one-tenth of the total produce.

The wash lies at a depth of thirty feet, and though being only two to three feet thick, furnishes better results than in any other part of the State. The ground is more loose and easier to dig than in other districts.

A small amount of gold is occasionally found mixed with the tin, but not in payable quantities, the proportion, however, increases in the direction of Bâtang Pâdang.

Judging by the very large blocks of solid oxide which are frequently found in the wash, as well as on surface, there is no doubt that the lodes which have produced this wonderful deposit must be uncommonly thick, and extend over a considerable length of ground; the tin-field probably extends all round Bûjang Malacca, between the latter and the more eastern range of mountains, and there is no reason why it should not prove just as rich as in the immediate vicinity of Naga Baru.

All indications lead one to believe that before long this Chendarîang district will become the most important centre of production of the whole State.

Every effort ought to be made to open that part of the country. The Chendarîang river will never allow a large traffic, whereas the Bâtang Pâdang river might be cleared without much cost, and made navigable to a steam-launch drawing 2 feet of water, for at least two-thirds of the way to Thappa. A cart road that would hardly exceed ten miles could then join Chendarîang to the accessible part of Sungei Bâtang Pâdang.

tang Pang disct.

The mining fields of this district are situated South of Thappa at a distance of two to three miles from the river. They are three in number. Changkat Chumor, Changkat Janka, and Klian Baru.

ankat umor.

The geological features of this field have already been mentioned. The formation is a white ferruginous clay exceedingly thick, resting on talc-schist and granite. The whole ground, up to the summit of the hill, which is about 150 feet high, is impregnated with tin-ore in sufficient proportion to make it payable, and the whole of the stratum is being worked at present. Rain water is made the most of for dressing purposes, and is collected in small reservoirs and ditches running in all directions on the surface of the hill. The tin stuff is thrown in, the tin remains at the bottom, whilst the refuse is carried away by the current. When rain water is scarce, the soil is simply taken to the foot of the hill and washed in a long canal which has been diverted from the river.

The Chinamen work here on their own account by small gangs of eight to ten men, and the total population amounts to about 300 miners. No gold is found at Changkat Chumor.

This hill is situated a little further to the South-east of the preceding one.

Changkat Janka.

The works are only carried on in the valley where two Kongsis, numbering one hundred men, are working two mines provided with water-wheels.

In one of the mines the wash is found at a depth of ten feet below the surface, and is from five to six feet thick. It is friable and clean and gives good results. Small quantities of gold are found with the tin—from 40 to 55 grains to one pikul of ore.

In the other mine, sixty coolies are engaged. The wash is six feet deep and measures three feet in thickness, resting on a false bottom of clay four feet thick; below this is a second layer of wash four feet in thickness, the total depth of the mine being seventeen feet.

The first layer contains a little tin, but no gold, whereas the bottom wash is rich in tin-ore and contains 60 grains of the precious metal to one pikul of tin sand.

Two furnaces smelt the product and no blast is required.

Klian Baru.

At Klian Baru four or five small Kongsis are at work and employ one hundred men. The most conspicuous feature of this small district is the greater proportion of gold found in the wash, averaging 260 grains to one pikul of ore.

Most of the tin-fields in the vicinity of Tapa have been worked since a long period of time, and may be considered at present as pretty well exhausted. New researches must now be directed towards the upper part of the river, at the foot of the Bâtang Pâdang range, where new deposits will probably be found.

The general deductions to be drawn from this rapid sketch of the mining conditions in this wonderful little country are sufficiently evident.

General Remarks.

In all the districts, mining is still in a state of infancy, a few small centres have been exhausted, but they form but a very trifling portion of the country. New fields are constantly being discovered and there remains to establish between them and the main rivers proper means of communication.

A good deal has already been done, and well done, to that effect, and it throws great credit on the Government of the State. The Kinta River is cleared, or very nearly so, as far as Kota Baru. In a very short time it will be accessible to a steam-launch as far as Batu Gajah. The good effect of such work has already manifested itself not only through a greater influx of mining population, but also in a commercial point of view.

Excellent roads will soon join the two important districts of Gôpeng and Papan to Sungei Kinta which is the great artery of the country, and give them a new impulse.

A deal of good might also be done if the Government took in hand the draining of certain districts, which, until then, can only be superficially worked.

The great fault with Chinamen, and especially Malays, does not lie so much in their defective method of working as in their inability to organise a proper draining system that will carry away the *surface* water.

The disastrous consequence is that most of the mines are only half worked out, but sufficiently however to render it impossible and unprofitable to others to resume the works at a future period. Considerable quantities of ore are consequently abandoned and lost for ever.

The Government would amply recover such expenditure, for the working out of the country is a work of time and not of a few years as will be shown by the following figures. The total area of the eight mining districts in Lower Pêrak can be estimated at 1,200 square miles, or 768,000 acres, and it can safely be stated that *one acre in one hundred* is actual alluvial mining ground, offering thus a total "surface utile" of 7,680 acres, which, under very ordinary circumstances, will afford profitable work to 25,000 miners for the next hundred years.

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